

## PO Job Risk Assessment

<b>Name(s) of Risk Team Members:</b> Fran Loeb, Mike Lowry, Cedomir Petrovic, Tonica Valla, Joe Vignola; S. Shapiro (Facilitator)	<b>Point Value → Parameter ↓</b>	1	2	3	4	5
<b>Job Title: Cryogenic Work</b>  <b>Job Number or Job Identifier: PO-JRA-008</b>	<b>Frequency (B)</b>	≤once/year	≤once/month	≤once/week	≤once/shift	>once/shift
<b>Job Description:</b> General work with non-combustible cryogenic fluids and systems-LN <sub>2</sub> -LHe. Does <b>not</b> include liquid hydrogen or liquid oxygen.	<b>Severity (C)</b>	First Aid Only	Medical Treatment	Lost Time	Partial Disability	Death or Permanent Disability
Training and Procedure List (Optional):	<b>Likelihood (D)</b>	Extremely Unlikely	Unlikely	Possible	Probable	Multiple
Rev. #: 0	Date: <b>February 15, 2005</b>					
<b>Stressors (if applicable, please list all):</b> Time and Confined Spaces		<b>Reason for Revision (if applicable):</b>			<b>Comments:</b>	

				Before Additional Controls							After Additional Controls					
Job Step / Task	Hazard	Control(s)	Stressors Y/N	# of People A	Frequency B	Severity C	Likelihood D	Risk* AxBxCxD	Control(s) Added to Reduce Risk	Stressors Y/N	# of People A	Frequency B	Severity C	Likelihood D	Risk* AxBxCxD	% Risk Reduction
Moving storage vessel (dewar) to/from location	Overexertion injuries caused by excessive lifting, pushing, pulling, holding or carrying an object	Wheeled dewars, training, safety shoes	N	1	3	2	2	12								
	Dewar tipping resulting in release of cold gas	Vessel design/certification, equipment inspection, training, Tier 1, wheeled dewars	N	1	3	3	3	18								

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Moving storage vessel (dewar) to/from location (cont'd)	Injury due to uncontrolled movement of dewar against wall or other object	Vessel design, PPE	N	1	3	3	3	18								
Moving storage vessel (dewar) in elevator	Oxygen deficiency	Training, no persons in elevator	N	1	3	5	1	15								
Connecting or disconnecting storage dewar to cryostat, and transferring cryogenic liquid	Falls to lower level from ladders or other cryostat access	Ladder design, equipment inspection, Tier 1, training, procedures	Y	1	4	3	3	36								
	Being struck by object due to pressure release	Vessel design/certification, equipment inspection, training, Tier 1	Y	1	4	4	1	16								
	Contact with temperature extremes that result in such injuries frost bite or burns	Training, procedures, gloves, eye protection, proper clothing	Y	1	4	2	3	24								
	Oxygen deficiency	Training, posting, safety reviews, ventilation, ODH calculations	Y	1	4	5	1	20								
	Dewar blockage	Vessel design, inspection	Y	1	4	3	2	24								
Pressurizing storage dewar	See working with compressed gases	See <a href="#">PO-JRA-012</a>	N	1	4	5	1	20								

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Transferring cryogenic fluid to portable dewar – only LN <sub>2</sub>	Contact with temperature extremes that result in such injuries frost bite or burns	Training, procedures, gloves, eye protection, proper clothing	N	1	4	2	3	24								
	Oxygen deficiency	Training, posting, safety reviews, ventilation, ODH calculations	N	1	4	5	1	20								
Hand transfer of cryogenic fluid from portable dewar to system	Contact with temperature extremes that result in such injuries frost bite or burns	Training, procedures, gloves, eye protection, proper clothing	N	1	4	2	3	24								
	Oxygen deficiency	Training, posting, safety reviews, ventilation, ODH calculations	N	1	4	5	1	20								
	Cut by sharp object due to breakage of glass thermos dewar	Training, procedures, gloves, eye protection, proper clothing, wrapping dewar with tape	N	1	2	1	3	6								
Operation of auto fill system – only LN <sub>2</sub>	Oxygen deficiency due to system failure	System design, operating procedures, work planning, training	N	1	5	5	1	25								
	Contact with temperature extremes that result in such injuries frost bite or burns	Training, procedures, gloves, eye protection, proper clothing	N	1	4	2	2	16								
Further Description of Controls Added to Reduce Risk:																

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*Risk:	0 to 20 Negligible	21 to 40 Acceptable		41 to 60 Moderate					61 to 80 Substantial		81 or greater Intolerable					